

# Improving Wastewater Treatment Systems

Ziebiec, Sw. Katarzyna, Namyslow, Nowa Sol, and Miedzna, Poland

## Background

Because of the deterioration of the local infrastructure systems in the Lower Silesia Region, local governments needed to improve the quality of their wastewater treatment plants. Inadequate facilities dating as far back as the early 1900s posed serious environmental and health hazards. In many areas, untreated wastewater is still being discharged directly into watercourses. There are serious service delivery problems, and inadequate operating techniques are being employed. Inefficient initial designs of plants have resulted in high operating costs, and incentives for effective operating practices, proper maintenance, and repair have traditionally been weak. In most cases, the existing wastewater infrastructure is unable to handle population and business growth. To address the critical problem of providing wastewater treatment, five small to medium size Polish municipalities, Ziebiec, Sw. Katarzyna, Namyslow, Nowa Sol, and Miedzna (with populations of 14,500–43,000) decided to improve the management and cost-efficiency of local infrastructure investments.

## Innovation

With outside assistance each municipality drafted an overall infrastructure plan that identified the most appropriate technologies, management techniques, and financial planning procedures to help identify and respond to the environmental problem created by untreated wastewater discharges into watercourses. Each city worked collaboratively to develop a Project Analysis Report (PAR), which consisted of a technical, organizational, and financial analysis of the municipality's potential and capability for capital investment. These PARs were the basis for designing projects and implementation schedules, allowing municipalities to save both time and money.

Seven specialized training courses were developed to fit the cities' needs. Training in management and operation of water and wastewater treatment plants, municipal financial planning, and public information was provided to 211 local government officials from 42 cities. The training courses introduced a methodology for evaluating municipal infrastructure problems and identifying cost-effective solutions appropriate to Poland. The training improved management skills of local officials, facilitated public input in the decision-making process, enabled cities to complete their own long-range plans for wastewater facilities, and introduced a market-based approach to public service delivery.

Specific procedures both for bidding specifications and bid evaluation were introduced based on the PARs, which considered both operating and maintenance costs. The cities revised their bidding procedures by involving a number of external experts from cooperating local and regional agencies, NGOs, and private consultants.

## Results

All municipalities prepared technical and financial analyses considering both the operating and maintenance costs and the quality of services. These analyses resulted in estimated savings of \$4.5 million in capital construction and \$262,500/year in operating and maintenance costs. The cities held public hearings on the specific changes they were considering. All five cities secured financing for improving their wastewater treatment plants. Currently, the Cities of Miedzna and Sw. Katarzyna are constructing new wastewater treatment plants, and the Cities of Namyslow, Ziebiec, and Nowa Sol are modernizing and expanding the capacity of their existing plants. The cities are now undertaking a market oriented approach to budget planning and service delivery.

## Summary

To improve deteriorating local infrastructure systems in the Lower Silesia region, five Polish cities decided to improve the management and cost-efficiency of their wastewater treatment plants. Two of the five Polish cities are constructing new plants and the remaining three are modernizing their existing plants.

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